

AD-A192 403

KNOWLEDGE ACQUISITION FOR EXPERT SYSTEMS IN  
CONSTRUCTION(U) LOUGHBOROUGH UNIV OF TECHNOLOGY  
(ENGLAND) DEPT OF CIVIL ENGIN. E G TRIMBLE ET AL.

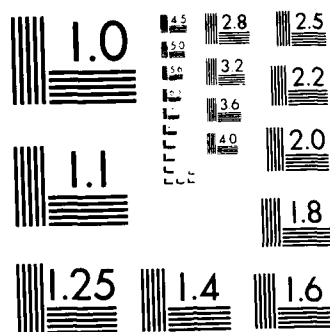
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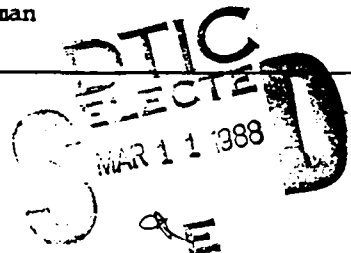
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Report for the US Army research development and standardization group (UK).  
Contract no. DAJA 45-85-C-0033  
Requisition no. R & D 5133

Subject Knowledge acquisition for expert systems in Construction  
Principal investigator Professor E G Trimble  
Associated investigators Dr R J Allwood. Mr A E Bryman

FIRST INTERIM REPORT

(as at 12 December 1985)



1. Preamble

The purpose of this document is to report to Dr James Gault on the current state of the work and to outline proposed future activities. We take the opportunity of attaching as an appendix, a copy of Section 'C1' of the contract which comprises the work statement.

2. Work to date

We had originally intended to appoint Mr D Stewart for the computer work. Regrettably he decided to take an appointment instead with a software company specializing in expert system software. We note this as we believe that the retention of suitable staff may become an important issue.

We have advertized the appointment and engaged Mr C N Cooper who will commence work on 27 January 1986. He has a somewhat similar background to Mr Stewart. Our discussions with him suggest that he will be a very valuable member of our research team.

On the behavioural side we appointed Dr J Cullen as from 19 October 1985. Dr Cullen is a well qualified social science graduate who has been working with us on studies relating to construction since 1983.

We have had two meetings with George Wimpey and Co who have re-affirmed their offer of co-operation. They have indicated that they wish to obtain a system that will be of direct use to them not simply a demonstration that expert system technology is relevant to the selected domain. This augers well for the success of this research.

We have started on the task of documenting completed case histories of knowledge acquisition. These include

- The work we undertook previously for CERL on materials handling for multi-storey construction.

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- The development (by Prof Trimble and Dr Allwood) of a system to diagnose the cause of dampness in buildings (commissioned by the Building Research Establishment).
- A system by the Polytechnic of the South Bank, London for the design of Air Conditioning Installations.
- A system developed by another department of this university for a firm of management consultants. The objective of the system is to select staff appropriate to the conditions of each assignment.

We have also started a study to re-examine the data for the dampness system to determine whether Expert Ease (or other methods of machine induction of rules) would be beneficial. Although we had strong doubts about this study initially, the interim results appear to be useful.

In order to provide an adequate spectrum of case study material Professor Trimble has joined, as an academic member, two "Community clubs" established under the Alvey Directorate, a British government initiative. The first is called PLANIT and relates to knowledge based interpretation and adjustment of network plans; the second is called ARIES and relates to investment decision making.

### 3. Future work

Our plans, though slightly delayed by the recruitment arrangements, will proceed as proposed in our application. Initially Mr Cooper will familiarize himself with the work we have already undertaken on materials handling and will study the detailed working of the SAVOIR shell. Soon after his appointment he will spend a continuous period with George Wimpey and Co to ascertain their policy and procedures for selecting materials handling equipment. At that juncture we shall review our strategy for the project and formulate a more specific plan for the remainder of 1986. If Dr Gault is available to join with us in this task we should welcome him as a direct participant in this very interesting project.



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SECTION 'C' DESCRIPTION/SPECIFICATION

C - 1 WORK STATEMENT

A. OBJECTIVE

To develop a methodology for acquiring information suitable for the knowledge base of an expert system to be used in support of construction management.

SCOPE

The construction experts of G. Wimpey Construction Company have agreed to work with the University Researchers to develop a knowledge base for construction management. The primary concern of this research is to investigate the approaches to eliciting knowledge from non-computer oriented experts. It is anticipated that knowledge bases from case studies will be produced along with a method for developing additional databases.

END

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